

Remarks

Claims 1-19 remain in this application. Claims 3, 11 and 17 have been canceled. Claim 19 has been withdrawn.

Entry of this Amendment is requested under 37 C.F.R. § 1.116, as it cancels claims and presents amendments of rejected claims in better form for consideration on appeal.

Election/Restriction

In view of the Examiner's restriction requirement, Applicants retain the right to present claim 19 in a divisional application.

Claim Objection

The Examiner's observations concerning claims 3 and 14 are well taken. Accordingly, claim 3 has been canceled. Claim 14 now depends from claim 1.

Claim Rejections - 35 U.S.C. § 102

Various rejections under 35 U.S.C. § 102 were made. The Examiner took the position that the recitation of ". . . thermal breaks, each comprising a slit . . . cut without the removal of material by teeth in intermeshing forming rolls from (sic) the serpentine fins and louvers in one pass through the forming rolls" was "a method limitation in an apparatus claim, which bears no patentable weight in this instance."

The Claimed Invention

The invention relates to a multi-purpose exchanger of thermal energy (*e.g.* a condenser/radiator combination) that is constructed by brazing the assembly as a single unit.

In one embodiment, the disclosed invention calls for a serpentine radiator fin and a condenser fin (in the case of a condenser/radiator assembly) that are separated by one or more thermal breaks. This thermal barrier comprises “a slit which is formed without removal of material” when the edges of the slit are separated in a scissor-like operation (e.g. Figure 2e). Specification, 3:19. When the edges of the slit are separated (e.g. Figure 2e), the slit inhibits the flow of heat energy across the width of the strip. See, also Figures 1b, 1c & 1d. The slit is depicted by the reference numeral 50.

One attribute of slits 50 being formed without the removal of material is that unwanted debris does not clutter the teeth of forming rolls during the manufacturing operation. Manufacturing economics are thereby improved by the avoidance of an unnecessary cleaning step, while prolonging tool life.

The thermal fuse or bridge is depicted by the reference numeral 52 (Figure 1c). Optionally, the thermal fuses 52 may or may not be broken after brazing. Specification, 7:1-3. Such a selective activation function permits the designer to promote structural integrity during pre-braze assembly and enable a localized transfer of heat. Thus, the thermal fuse 52 fulfills the dual role of adding strength during assembly, while degrading fin junctions during operation. Specification, 7:26-27.

Claim 1 has been amended to clarify that the thermal break or slit has “a length exceeding one convolution that is cut without the removal of material”.

Discussion of the Rejections

Claims 1, 3-4, 6, 13 & 15-16 stand rejected as being anticipated by Makino et al. (Figures 21-23) or Nishishita et al. (WO 99/26035).

As amended, claim 1 calls for the slit to have “a length exceeding one convolution . . .”, as observed in the Amendment dated December 3, 2002. No such structure

is disclosed in either Makino et al. (slots 67) or Nishishita et al. (slots 51). Also, a "slit" is not a "slot". Similar comments apply to the rejection of claims 1, 3-6, 13 & 15-16 under 35 U.S.C. § 102(b) based on Nishishita et al. (WO 99/53253).

Claims 1-4, 6-10, 12-13 & 16-17 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Sugimoto et al (5,992,514) or Yamanaka et al. (Figures 3-4). The '514 reference discloses a slot 47 having a width L_s . Yamanaka et al. (Figures 3-4) depicts a slot 22d. In the claimed invention, the slit is formed without the removal of material.

The Examiner is of the view that the recitation of "thermal breaks . . . (with a slit cut) by teeth in intermeshing forming rolls with the serpentine fins and louvers in one pass through the forming rolls" is a "method limitation in an apparatus claim which bears no patentable weight . . ."

In this situation, there are significant differences between the serpentine fins produced by the process recited in claim 1 as compared to the fins made by prior art approaches. The differences are described in the claims: The serpentine fins have "a slit having a length exceeding one convolution that is cut without the removal of material by teeth in intermeshing forming rolls from the serpentine fins and louvers in one pass through the forming rolls." Applicants therefore respectfully suggest that the invention as defined in claim 1 (and those claims which depend therefrom) fully comply with MPEP § 706.03(e). The claimed invention is new in structural terms (and therefore meets the novelty requirement) in that the serpentine fins have one or more slits with a length that exceeds one convolution.

Additionally, certain apparent "process" words in claim have been interpreted as structural limitations when they adequately define a physical characteristic of the product. CHISUM ON PATENTS, §8.05[4] (courts have held a variety of words not to be process limitations; typical are: . . . 'pressfitted' as descriptive of a sheet metal structure, citing Saxe & Levitt, "Product-By-Process Claims And Their Current Status", 42 JPOS 528, 536 (1960)).

Claim Rejections - 35 U.S.C. § 103

To expedite prosecution, claim 11 is canceled hereby.

Claim 18 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Sugimoto et al. (5,992,514) or Yamanaka et al. in view of Motegi et al. Claim 18 incorporates the limitation of claims 16 and 1. The discussion of Sugimoto et al. and Yamanaka et al. appearing above is incorporated here by reference. Motegi et al. '220 discloses elongated fins which are arranged in parallel with one another. There is no disclosure of a structure which would include multiple cores with serpentine fins and louvers in which the slits are cut without the removal of material by teeth in interimeshing forming rolls in one pass therethrough. Claim 18 rises or falls with claims 1 and 16.

Acknowledgment of Examiner's Response to Arguments

The Examiner states that he is “unaware of any process that cuts without forming a gap between the cut portions.” Applicants respectfully disagree with this position. No gap is formed because no material is removed by a tool with a suitably sharp edge. Material is pinched beyond its shear limits and displaced-- not removed. The Specification discloses a manufacturing tool which operates much like a rolling pair of scissors.

The Examiner stated that claim 14 “has not been rejected, the merits of the claim in its present form cannot be ascertained.”

The dependency of claim 14 has been changed so that it now incorporates the limitations of claim 1. As amended, this claim defines an invention in which the “louvers are located within only one of the cores.”

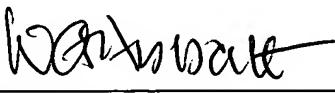
Conclusion

All formal and substantive requirements of patentability now appear to have been met. If a telephone call would expedite prosecution, the Examiner is invited to contact the undersigned.

Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Respectfully submitted,

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